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ABSTRACT

Two implicit mandates are posited as fundamental to the consideration of any successful evaluation procedure by every instructor in the basic speech course. First, a clear philosophical position must be taken for guiding both the course objectives and the evaluation techniques. Second, a successful method for executing the philosophical position must be implemented. Described in the article are three forms of tests currently being developed at Wichita State University for use in the basic course. Written tests which meet certain criteria in development and which are matched to a philosophy conducive to developing and evaluating communicative competencies become the most valuable part of the basic course. (EE)

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USES OF WRITTEN TESTS IN THE BASIC COURSE

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I

Every academic discipline expresses concern over evaluation procedures used in the classroom. Communication instructors seem to feel they have special circumstances that require more concern than others. Only a casual review of the literature is enough to find large quantities of material across a broad spectrum of problems, solutions, and alternatives for evaluation procedures in the basic oral communication classroom. Discussion has centered on oral communication evaluations,[1] evaluations of oral communication,[2] grading by audience reactions,[3] grading by audience,[4] grading by the numbers,[5] grading by written tests,[6] grading by improvement,[7] grading by contract,[8] grading,[9] and no grading[10]---just to cite a few.

In all of this literature, two implicit mandates can be found as fundamental to the consideration of any successful evaluation procedure: (1) a clear philosophical position must be taken for guiding both the course objectives and the evaluation techniques, and (2) a successful method for executing the philosophical position must be implemented. Eventually these two mandates must be considered by every instructor in the basic course.

Recently, Wichita State University was asked to reevaluate their entire program for oral communication which, among other things, allowed for reconsideration of a philosophy of evaluation and methods for executing a philosophy in two types of basic oral communication courses--the public speaking course and the interpersonal communication course. After much consideration of the theoretic as well as pragmatic consequences of alternative evaluation procedures, we chose to include extensive use of

written tests in the oral communication program. Beginning in the Fall, 1973, term we will employ written tests for exemption and exiting from the course and for providing additional instruction within the course.[11] The purpose of this presentation is to explain why we arrived at our decision and how we intend to execute the use of written tests in the basic course.

Two preliminary statements should be made about evaluation by testing. First, any evaluation procedure is an inference. The closer the inference maps reality the better the evaluation procedure. For evaluation of learners, the common inferential methods call on judgments that are inherently limited.[12] To compensate for these limitations, an accumulation of evidence from a variety of testing procedures is the best base for framing final evaluations. Therefore, we do not do away with other forms of assessment, in particular those of oral performances in the basic course, nor do we advocate reliance for assessment solely on results of written testing devices. Second, the best judgments are made from objective data.[13] To the extent that all evaluation procedures call for, and rely on, the production of objective data, the better the inference process and the better the base for framing final evaluations. Therefore, we attempted to find those procedures that tend to produce objective data.

II

There are any number of acceptable philosophical constructs for the design of the basic course that lend arguments conducive to defending the use of written tests. Three such constructs are given here: the skill versus art, performance versus competence, and accountability issues.

A considerable number of speech professionals prefer to consider speaking as an art form. Although somewhat loosely defined, at least in

textbook discussions,[14] the speaker as artist "successfully matches idea, medium, and purpose, utilizing all relevant resources to endow ideas with just the qualities his purpose requires."[15] Art is distinguishable from skill by distinctly "implying a personal, unanalyzable creative power."[16]

Although the preference for speech as art is admirable (and a preference difficult to challenge at face value), it is an inappropriate choice for those courses required to be taken by all university students. Course objectives based on measures of artistic merit as framed by the previous definitions cannot be achieved by even a small number of students. In particular, the basic course is not appropriate ground for the development of polished orators. However, the most significant argument is that evaluation by artistic elements does not yield to standardized analyzable data. If the basic course is offered in multiple sections, in recurring semesters, by differing sets of instructors, as a requirement for all students in the university, the failure to identify and standardize criteria for evaluation will reduce the basic-course program to chaos.

This does not argue that the other side of the coin, the skills approach, is to be chosen by default. Such an approach can stand on its own merit by adopting a more sophisticated analysis for framing the design of a basic course. This analysis can be made by drawing metaphorically on the linguists' performance-competence dichotomy. For linguistics, the distinction of performance and competence is crucial. Competence is the set of rules for language behavior while performance is the language behavior. As DeVito notes: "performance is determined by many factors only one of which is competence."[17] A direct application of performance-competence to communication has been attempted by some very recent authors.

For example, Robert Nofsinger feels "there is reason to believe that there may be a rule structure to communication, and some scholars believe that it is possible to gather evidence which should firmly establish or refute this assertion."[18]

If the dichotomy is transferred as a metaphor, then a clear distinction exists between discovering and internalizing rules for effective communication behavior and engaging in patterns of communication behavior. The recognition and capacity for effective public speaking, or interpersonal communication, is communication competence while speaking or interacting is performance. The question of whether rules for determining communication competence exist to the extent rules exist for linguistic competence is certainly beyond the scope of this paper and is the major reason for seeking a metaphorical mapping. However, to the extent an instructor accepts a rhetorical theory, establishes rules for effective speaking, or advocates determinates of effective interpersonal behavior, that instructor is attempting to locate a communication competency.[19] To the extent the instructor expects the student to know and be <u>able</u> to apply the theory, rules, or determinates, the instructor is expecting a reflection of communication competence.

The linguist places a great amount of importance upon the appraisal of linguistic competence. The speech teacher should place an equal amount of importance on the appraisal of communication competence. The process of evaluating communication competence must be carefully handled to assure that distinction is made between competence and performance.

It is dubious, if not wholly impossible, to determine an accurate measure of communication competence by testing oral performances. First,

the oral act is an exceedingly complex set of behaviors interacting in an almost infinite number of patterns. When the evaluator enters the communication system the complexity and variety increases even further. Research has rather conclusively established the lack of validity in assessing oral performances even when attempts to standardize evaluation have been used.[20] What past researchers have told us is that factors of attention, selectivity, fatigue, emotional state, prior speeches given by the class, prior speeches given by the particular student, expectancies, personal likes and dislikes, and countless others interact to make oral evaluations a seriously limited evaluation procedure. Second, the testing for competence in the oral performance works to the advantage of the student who has talented verbal facility. Although research may prove me wrong, verbal facility seems the single most dominant characteristic to mask inadequacies of oral presentations. In the typical speech class, where evaluations are based on comparisons, the verbally talented will be advantaged.[21] Third, the classroom experience is supposed to represent a simulated experience generalizable to typical communication experiences of the student's current and future environment. As long as any evidence exists that the classroom oral communication experience demands unique behavior patterns not generalizable to typical (non-simulated) experiences then evaluation of the experience is meaningless. As we are only beginning to document in urban settings with inner-city or ghetto students, the classroom experience tests performance that is not reflective of competence. Conville and Story have recently claimed that classroom communication behavior better reflects a student's ability "to defend [himself] in a hostile and threatening situation" than to competently communicate.[22]

A serious issue facing all facets of academic life is "accountability." Although typically defined in terms of "cost-accounting," the concept has ramifications beyond simple economic questions. Students and administrators are almost equal with legislators in demands for an accounting of educational procedures and evaluation techniques.[23] This issue must be taken seriously for the power really rests with those asking the questions, and the typical basic course is in no position to evidence answers. Until the basic course moves to established course criteria in which objective data is used to confirm learning achievement, there can be challenges (and losses) in the speech curriculum.[24]

One approach to the demands of accountability is the use of behavioral objectives. Behavioral objectives allow for consideration of the appropriate concepts and content for the course as well as a description of "what students will be able to do after completing a prescribed unit of instruction."[25] Descriptions and recommendations for implementing behavioral objectives are amply documented in the literature.[26] Here, we would note behavioral objectives' major advantage over other schemes is they allow components of complex behavior to be broken not only into constituent <u>elements</u> of behavior but into <u>levels</u> of behavior. For example, a requirement of "a five minute speech to inform" involves a demonstration of behavior in the psychomoter, affective, and cognitive behavior domains as well as a demonstration of behavior at different levels of each domain. If the behavioral objectives do discern more specific components and levels of behavior and if those discernments call on cognitive handling of communication competencies, then written tests <u>can</u> and <u>should</u> be an appropriate measuring technique for evaluating achievement of the objectives.

The previous arguments of this paper suggest that the oral communication course, public speaking or interpersonal communication, for the modern university or college has to recognize priorities for teaching communication competencies in an accountable manner. Therefore, it follows that such a course not only can make use of written testing instruments but should make use of written testing instruments.

III

The fundamental distinction between testing devices of any kind centers on the procedure by which achievement is measured. There are two common procedures: norm-referenced measurement (NRM) and criterion-referenced measurement (CRM). Norm-referenced measurement "is designed to ascertain a student's performance in relation to the performance of others on the same test."[27] Criterion-referenced measurement is "designed to determine whether a student has achieved mastery of a behavior as specified in a performance objective at a given criterion level."[28] Recently, an excellent article by Smythe, Kibler, and Hutchings[29] detailed the difference between norm- and criterion-referenced measurement and suggested implications of criterion-referenced measurement for communication instruction. This is an important article for those instructors whose courses follow the communication competencies model since criterion-referenced measurement is the most appropriate measuring procedure. Instructors using behavioral objectives will also be interested in criterion-referenced measurement as the only useful measuring procedure.

For the WSU program, all uses of written tests will be based on the criterion-referenced measurement procedure. Issues that become critical in adopting such a procedure are the same as for any evaluating procedure:

validity, reliability, usability, and power. Validity, the ability of the test to measure what it intends to measure, and reliability, the ability of the test to measure consistently, are issues that have already been discussed, and resolved in favor of written testing over evaluation of oral performances for the communication competencies model. Usability is the ability of the test to effeciently meet the demands and objectives of the course. If the test is practical in terms of time limits and economy, is clearly understood by students in terms of the relevant objectives, and is appropriate for the type of learning that is being measured the test is usable. Power is the ability of the test to challenge and discriminate among those who have competence and those who do not. All four issues are met as much in the design of behavioral objectives, in particular the setting of criteria for the objectives, as they are in the design of the test.

Since this paper is more descriptive of tests than objectives, we ask for consideration of three possible uses for written tests that follow the philosophy of a course built around communication competence as reflected in behavioral objectives. WSU is currently in the process of developing and implementing all three uses for written tests.

WSU is under the kind of pressure felt by others to have a procedure by which students can be exempted from taking a required course. The concept of an exemption device is based on the assumption that some students already possess the abilities expected upon completion of the course; therefore, they have little to gain from taking that course. While distasteful for some to believe they have nothing to offer some students, the argument is presentable if one has identified specific objectives for his course and expects that behavior demonstrating mastery of those objectives

is sufficient for satisfying the demands of the course. If the student can meet the demands of the course, why should he have to take the course?

The real problem, however, is discovering the procedure best able to predict the student can meet those demands. A number of researchers have directed their attention to discovering a procedure for predicting success in the basic course. Judd and Smith[30] and Wall[31] have tried to correlate SAT Verbal Scores (as well as other measures) with success in the basic course, but neither study would firmly state that such scores were sufficient as predictors. Kibler, Kelly, Gibson, and Gruner[32] reported a significant correlation between the number of syllables used by students in a public speech sample and the final grade. However, from a political position within the university, we do not feel it would be prudent to inform the University Advisory Board that students will be exempt from the basic course based on a sampling of their speech that shows a high syllable count.

This research does not rule out the findings of an effective exemption procedure. Ellis provides some evidence in his reporting of a relatively successful written test consisting of three subtests: (1) a measure of the student's prior speaking experience, (2) a self-rating of speech skills and fears, and (3) the student's liking for speech-related activities.[33] This gave us confidence in the potential for paper-and-pencil testing but gave us caution since we were looking for some measure of cognitive abilities rather than affective behavior. For a measurement of cognitive behavior, we turned to an examination used by Pennsylvania State University for predicting who should be exempted from their basic program.[34] Their noted success with their test, especially using paper-and-pencil screening only, was sufficient to argue for a similarly constructed test at WSU.

The second use for written tests developed as the most feasible answer to a series of problems. The basic course had been under severe criticism to the point the course was in danger of being dropped from the curriculum. With forty-five sections offered each semester there was not only a considerable difference in what the students believed were the course objectives, there was a considerable difference in what they reported were the course requirements. The content and requirement variance between instructors teaching the course was so extensive, there was no single basic speech course. The second problem was the course had no device to document, for accountability purposes, the student's satisfaction of the course objectives. Among the methods for resolving those problems was to devise a uniform exiting device. This means that at the end of each semester, all the students enrolled in all sections of the basic course would take a uniform final examination.

The construction of such a device will be consistent with the goals, philosophies, and requirements for a test for this kind of a course. The device will be constructed by using a matrix for determining the number of items appropriate for each cognitive behavioral objective to be tested.[35] Figure I shows such a matrix. Each item in the columns refer to the behavioral objective to be tested and each item in the rows refers to the level that objective is to be tested at. At the intersection of the rows

- -

INSERT FIGURE I ABOUT HERE

- -

and columns is the percentage of items in the test that will be devoted to each objective at each level. This method allows us to construct a

balanced test. Furthermore, after the test an evaluation of the instruction for each instructor for each objective at each level as well as the achievement for each student for each objective at each level can be determined.

Written tests can also take the form of self-instructional devices. As the third means of using written tests, WSU will develop a special program of self-instructional material. The purpose of such material is to aid the student having difficulty in grasping some of the fundamental concepts. Any number of good program-learning texts are available for the basic oral communication course to meet the needs of this student.[36] In addition, we will develop special self-instructional programs using computer terminals.

Interactional computer facilities that allow "hands-on" operation by students are valuable self-instructional tools. Typically, the operation of the facility is simple, thereby requiring little training of the student in the operation procedures.[37] These programs are especially useful for drill-and-practice, tutorial work, or simulated exercises.[38] Sophisticated programs can divert the student to subroutines that tailor the level of the material to the knowledge level shown by the student's answers.[39] With the teletype terminals a permanent record and a copy is available for review by the student after leaving the machine and for evaluation by the instructor. Such instructional testing devices bring meaning to Benjamin Bloom's definition of testing as "the act of gathering and processing evidence about human behavior under given conditions for purposes of understanding, predicting, and controlling future human behavior."[40]

IV

Written tests can be an effective part of the basic course. If the tests meet certain criteria in development and are matched to a philosophy conducive to developing and evaluating communication competencies, then written tests are a most valuable part of the basic course. The purpose of this paper was to demonstrate some of the essential criteria for developing and implementing written tests, and to describe three forms of written tests being developed at Wichita State University.

FIGURE I

SAMPLE MATRIX FOR DETERMINING THE PERCENTAGE COMPOSITION OF AN OBJECTIVE TYPE COURSE EXAMINATION FOR EACH COGNITIVE BEHAVIORAL OBJECTIVE AT EACH LEVEL OF THE COGNITIVE DOMAIN

Objectives To Be Tested

	Language	Perception	Nonverbal	Listening	Defensiveness	Doublebinds	Totals
Knowledge of Terminology							
Knowledge of Criteria							
Comprehension							
Application							
Analysis							
Synthesis							
Totals							

FOOTNOTES

[1]Paul Holtzman, "Speech Criticism and Evaluation as Communication," Speech Teacher, 9 (1960), 1-7; Robert Bostrum, "Classroom Criticism and Speech Attitudes," Central States Speech Journal, 14 (1963), 27-32; Raymond G. Smith, "The Criticism of Speeches: A Dialectical Approach," Speech Teacher, 10 (1961), 59-62.

[2]Robert Oliver, "The Eternal (and Infernal) Problem of Grades," Speech Teacher, 9 (1960), 8-11; Donald Dedmon, "Criticizing Student Speeches: Philosophy and Principles," Central States Speech Journal, 18 (1967), 276-284.

[3]William Tacey, "Class Reaction as a Basic for Grading," Speech Teacher, 14 (1965), 224-225.

[4]Gordon Wiseman and Larry Barker, "A Survey of Peer Group Evaluation," Southern Speech Journal, 31 (1965), 132-138; Gordon Wiseman and Larry Barker, "An Appraisal of Peer Group Instruction," Central States Speech Journal, 17 (1966), 125-130.

[5]Brian Holleran, "The Use of Performance Options in Speech Courses," Today's Speech, 20 (Winter, 1972), 27-29; Donald Sikkink, "A Numerical Grading System for the Required Basic Speech Course," Speech Teacher, 13 (1964), 293-295; Thomas Sawyer, "A Grading System for Speech Classes," Speech Teacher, 9 (1960), 12-15.

[6]Robert Goyer, "The Construction of the 'Objective' Examination in Speech," Southern Speech Journal, 28 (1962), 27-35.

[7]Joseph DeVito, "Learning Theory and Grading," Speech Teacher, 16 (1967), 155-157.

[8]David Stern, "A Flow-Chart Approach to Public Speaking on the Contract Plan," Today's Speech, 20 (Winter, 1972), 25-26.

[9]Eugene White, "A Rationale for Grades," Speech Teacher, 16 (1967), 247-252.

[10]Robert Bostrum, "The Problem of Grading," Speech Teacher, 17 (1968), 287-292.

[11]The author will be Director for the Basic Oral Communication Program at Wichita State University beginning with the Fall, 1973, term. For the past year he has served as a consultant for the University Senate's Task Group on General Education in the formation and design of the program.

[12]See: Robert Gagné, "Instructional Variables and Learning Outcomes," The Evaluation of Instruction: Issues and Problems, M. C. Wittrock and David Wiley (eds.), (New York: Holt, Rinehart and Winston, Inc., 1970), 105-126.

[13]William Brooks and Gustav Friedrich, Teaching Speech Communication in the Secondary School, (Boston: Houghton Mifflin Co., 1973), 130.

[14]Hermann Stelzner, "Column Two: Textbook Definitions of Speech as Art," Today's Speech, 19 (Summer, 1971), 3-6.

[15]John Wilson and Carroll Arnold, Public Speaking as a Liberal Art, (2nd ed.), (Boston: Allyn and Bacon, Inc., 1968), 5.

[16]Webster's Seventh New Collegiate Dictionary.

[17]Joseph DeVito, The Psychology of Speech and Language, An Introduction To Psycholinguistics, (New York: Random House, 1970), 45.

[18]Robert Nofsinger, "Communicative Competence: Reflections on a Paradigm," (paper presented at 58th Annual Meeting of the Speech Communication Association, Chicago, 1972), 6.

[19]The argument can be made, for example, that any theory of rhetoric is a set of rules which the speaker knows, can apply, and their operations brought to his consciousness. Likewise, for interpersonal communication, Berne's games, Condon's phatic communion, Laing, Phillipson, and Lee's reciprocal perspectives, Goffman's role-playing, as well as other interpersonal "rule-describing" theories of behavior are descriptive of competencies. See: Eric Berne, Games People Play, (New York: Grove Press, 1964); John Condon, Semantics and Communication, (New York: Macmillan Co., 1966); R. D. Laing, H. Phillipson, and A. R. Lee, Interpersonal Perception: A Theory and a Method of Research, (New York: Springer Publishing Co., 1966); Erving Goffman, The Presentation of Self in Everyday Life, (Garden City, New York: Doubleday Anchor Books, 1959).

[20]Wayne Thompson, "The Accuracy of Typical Speech Rating Techniques," (unpublished PhD. dissertation, Northwestern University, 1943), 5-11; Franklin Knower, "What is a Speech Test?" Quarterly Journal of Speech, 30 (1944), 489; Jack Douglas, "The Measurement of Speech in the Classroom," Speech Teacher, 7 (1958), 309-319; Gerald Miller, "Agreement and the Grounds for it: Persistent Problems in Speech Rating," Speech Teacher, 13 (1964), 257-261; Robert Bostrum,"Dogmatism, Rigidity, and Rating Behavior," Speech Teacher, 13 (1964), 283-287; Theodore Clevenger, "Some Factors Involved in Classroom Procedures for the Acquisition of Verbal Concepts," Speech Teacher, 15 (1966), 113-118; Gerald Phillips, "The Oral Communication Revolution," reprinted in Dimensions of Oral Communication Instruction, Keith Erickson (ed.), (Dubuque, Iowa: Wm. C. Brown Co., 1970), 263; L. L. Barker, "The Relationship Between Sociometric Choice and Speech Evaluation," Speech Teacher, 18 (1969), 204-207; Theodore Clevenger, "Retest Reliabilities of Ten Scales of Public Speaking Performances," Central States Speech Journal, 14 (1963), 285-292; Donald Marine, "An Investigation of Intraspeaker

Reliability," Speech Teacher, 14 (1965), 128-131; L. L. Barker, R. J. Kibler, and E. C. Hunter, "An Empirical Study of Overlap Rating Effects," Speech Teacher, 17 (1968), 160-166; Douglas Bock, "Reliability and Validity of Speech Rating Scales: Some Error Effects," Central States Speech Journal, 23, (1972), 145-151.

[21]Albert Myers, "Performance Factors Contributing to the Acquisition of a Psychological Advantage in Competition," Human Relations, 19 (1966), 283-295. Myers documents the tendency of the talented competitor being able to establish a psychological advantage over others. This would seem to operate two ways in the classroom: (1) the non-talented student would feel disadvantaged and act accordingly, and (2) the instructor would expect the talented student to be better thereby compensating for whatever deficiencies the student does demonstrate.

[22]Richard Conville and Richard Story, "Teaching to Communicate: The Sociolinguistic Problem," Speech Teacher, 21 (1972), 249-250. See also, Gordon Whiting, "Code Restrictedness and Opportunities for Change in Developing Countries," Journal of Communication, 21 (1971), 36-57.

[23]So many sources are available for the issue of accountability that only a few randomly enlightening references are listed here. Roger Domyahn, "Annotated Bibliography on Accountability," Audiovisual Instruction, 16 (May, 1971), 93-101; D. O. Henry, "Accountability: To Whom, For What, By What Means?" Educational Record, 53 (1972), 287-292; "Curriculum in an Age of Accountability," Teacher, 90 (January, 1973), 52-53.

[24]See: John J. Makay, "A Problem of Transfer from the Interpersonal Communication Course (Or Any Other) To the Real World--What's The Hang-Up?" (paper presented at the 58th Annual Meeting of the Speech Communication Association, Chicago, 1972).

[25]Robert Kibler, Larry Barker, and David Miles, Behavioral Objectives and Instruction, (Boston: Allyn and Bacon, Inc., 1970), 1.

[26]Eldon Baker, "Aligning Speech Evaluation and Behavioral Objectives," Speech Teacher, 16 (1967), 158-160; Charles Gruner, "Behavioral Objectives for the Grading of Classroom Speeches," Speech Teacher, 17 (1968), 207-209; R. J. Kibler, L. Barker, and D. Cegala, "Behavioral Objectives and Speech-Communication Instruction," Central States Speech Journal, 21 (1970), 71-80; R. J. Kibler, L. L. Barker, and D. Cegala, "A Rationale for Using Behavioral Objectives in Speech-Communication Instruction," Speech Teacher, 19 (1970), 245-256; Richard Lee, "Linguistics, Communication, and Behavioral Objectives: A Remedial Curriculum," Speech Teacher, 20 (1971), 1-9; William Torlidas, "Defining Behavioral Objectives for the Teaching of Speech Communication: An Analytical Study," (unpublished PhD. dissertation, Temple University, 1972); D. Cegala, R. J. Kibler, L. L. Barker and D. Miles, "Writing Behavioral Objectives: A Programmed Article," Speech Teacher, 21 (1972), 151-168.

[27]Mary-Jeanette Smythe, R. J. Kibler, P. W. Hutchings, "A Comparison of Norm-Referenced and Criterion-Referenced Measurement With Implications for Communication Instruction," Speech Teacher, 22 (1973), 3.

[28]Smythe, Kibler and Hutchings, 3.

[29]Smythe, Kibler, and Hutchings, 1-17.

[30]Larry Judd and Carolyn Smith, "Predicting Success in the Basic College Speech Course," Speech Teacher, 18 (1969), 13-17.

[31]K. Wayne Wall, "The Continuing Problem of Predicting Success in the Basic College Speech Course," Speech Teacher, 19 (1970), 310-312.

[32]R. J. Kibler, F. J. Kelly, J. W. Gibson, and C. R. Gruner, "Predicting Speech Grades from Selected Spoken Language Variables," Southern Speech Journal, 34 (1968), 94-99.

[33]Dean Ellis, "A University Speech Placement Test for Entering Freshmen," Speech Teacher. 15 (1966), 158-164.

[34]George Borden, "A Report on Speech Proficiency Testing," (unpublished report, 1968).

[35]For similar matrices see: Robert Goyer, "The Construction of the 'Objective' Examination in Speech," Southern Speech Journal, 28 (1962), 27-35; Brooks and Friedrich, 140.

[36]See short descriptions by Eldon Baker, Owen Jenson, Philip Amato and L. S. Harms in Speech Teacher, 17 (1968), 262-264; Thomas King, "Programmed Textbooks in Communications," Journal of Communication, 17 (1967), 55-62. A text using programmed instruction is James Gibson, Speech Organization: A Programmed Approach, (San Francisco: Rinehart Press, 1971). Several publishers are in the process of releasing new programmed texts in speech.

[37]R. C. Atkinson and H. A. Wilson, "Computer-Assisted Instruction," Science, 162 (1968), 73-77.

[38]For example, see William Lashbrook, "Program ARISTOTLE: A Computerized Technique for the Simulation and Analysis of Audiences," (San Jose, California: Department of Speech-Communication, San Jose State College, March 1, 1970).

[39]For example, the type of testing recommended by Streff is especially appropriate to self-instructional computer-interaction programs. Craig Streff, "Testing for Conceptual Understanding, Extrapolation, and Discrimination: A New Approach," Speech Teacher, 21 (1972), 131-134.

[40]Benjamin Bloom, "Toward a Theory of Testing Which Includes Measurement-Evaluation-Assessment," The Evaluation of Instruction: Issues and Problems, M. C. Wittrock and David Wiley (eds.), (New York: Holt, Rinehart, and Winston, Inc., 1970), 38.